FIG. 1

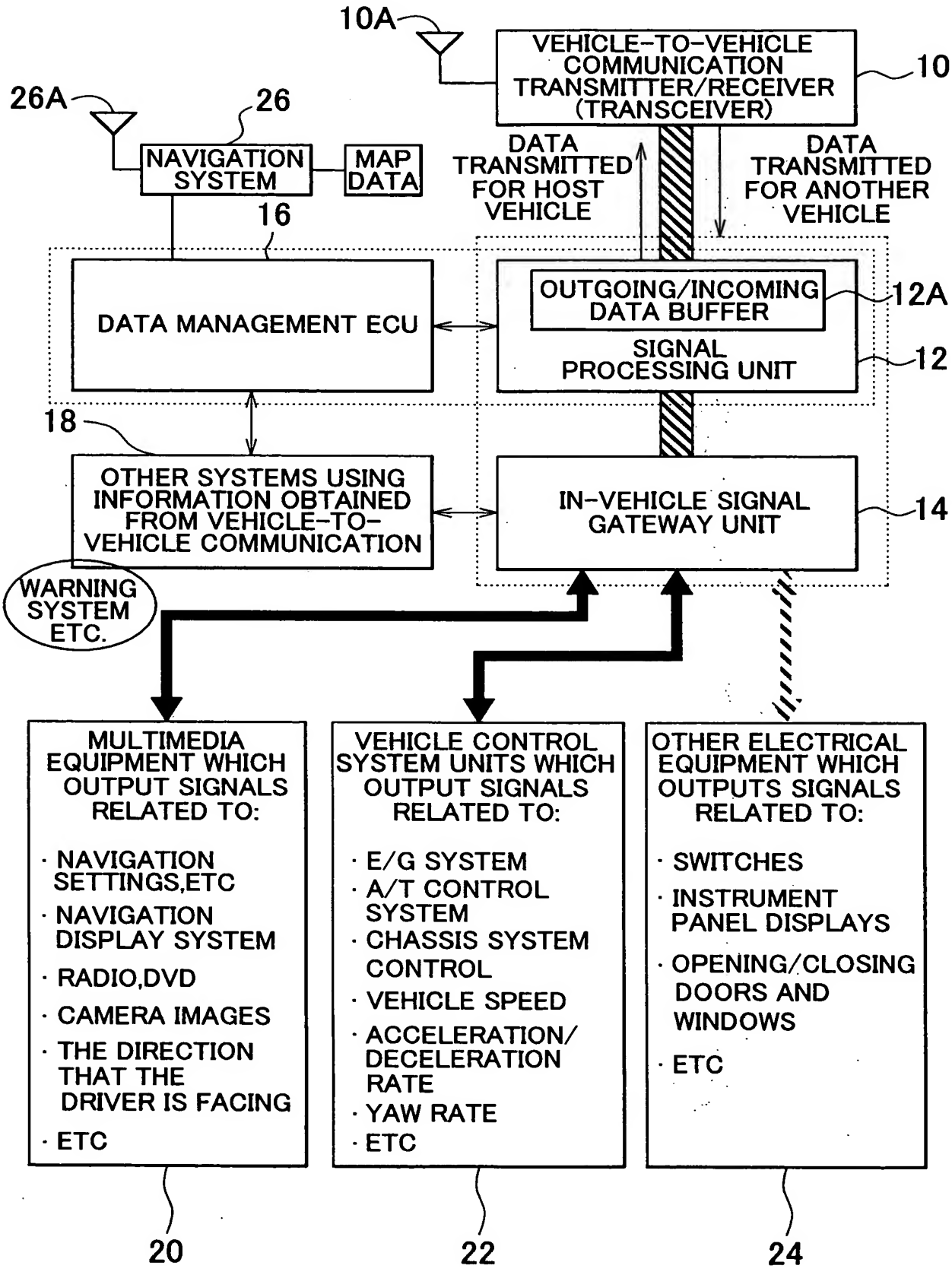
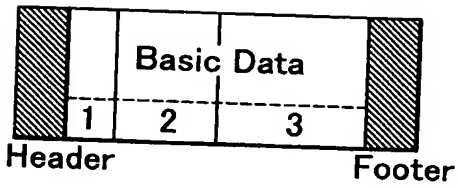
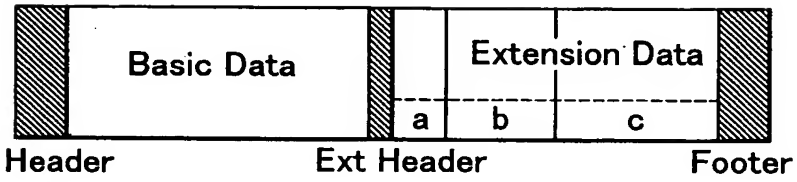

10A
VEHICLE-TO-VEHICLE COMMUNICATION TRANSMITTER/RECEIVER (TRANSCEIVER)
10
26A
26
NAVIGATION SYSTEM
MAP DATA
DATA TRANSMITTED FOR HOST VEHICLE
DATA TRANSMITTED FOR ANOTHER VEHICLE
16
DATA MANAGEMENT ECU
OUTGOING/INCOMING DATA BUFFER
12A
SIGNAL PROCESSING UNIT
12
18
OTHER SYSTEMS USING INFORMATION OBTAINED FROM VEHICLE-TO-VEHICLE COMMUNICATION
IN-VEHICLE SIGNAL GATEWAY UNIT
14
WARNING SYSTEM ETC.
MULTIMEDIA EQUIPMENT WHICH OUTPUT SIGNALS RELATED TO:
· NAVIGATION SETTINGS,ETC
· NAVIGATION DISPLAY SYSTEM
· RADIO,DVD
· CAMERA IMAGES
· THE DIRECTION THAT THE DRIVER IS FACING
· ETC
VEHICLE CONTROL SYSTEM UNITS WHICH OUTPUT SIGNALS RELATED TO:
· E/G SYSTEM
· A/T CONTROL SYSTEM
· CHASSIS SYSTEM CONTROL
· VEHICLE SPEED
· ACCELERATION/ DECELERATION RATE
· YAW RATE
· ETC
OTHER ELECTRICAL EQUIPMENT WHICH OUTPUTS SIGNALS RELATED TO:
· SWITCHES
· INSTRUMENT PANEL DISPLAYS
· OPENING/CLOSING DOORS AND WINDOWS
· ETC
20
22
24

FIG. 2



1	ID CODE(IP ADDRESS,ETC)
2	POSITIONAL INFORMATION
3	VEHICLE TYPE CODE

FIG. 3



a	TRANSMISSION TARGET ID CODE
b	COMMUNICATION IMPEDING INTERSECTION INFORMATION
c	ADDITIONAL INFORMATION,ETC.

FIG. 4

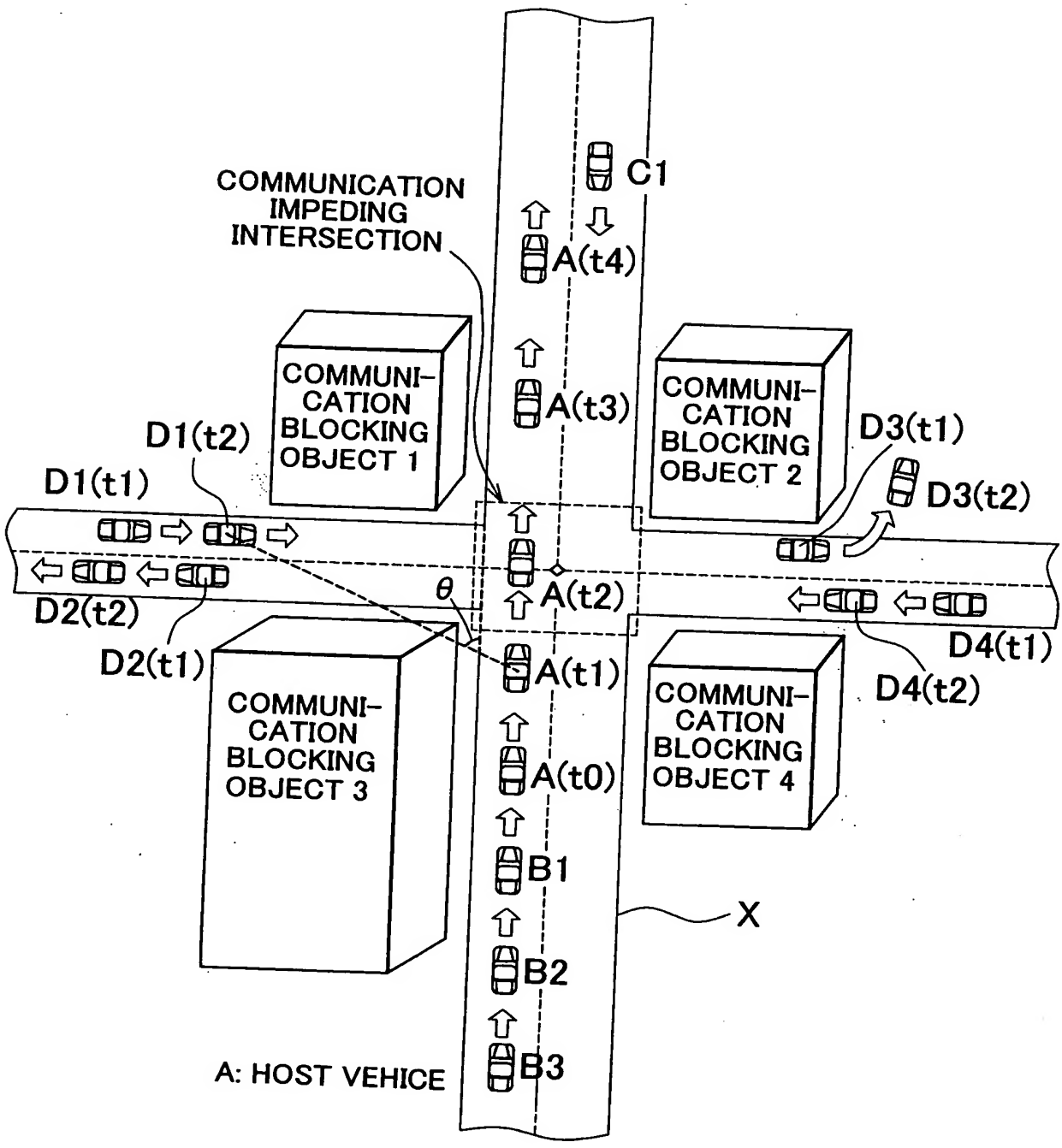

COMMUNICATION IMPEDING INTERSECTION
C1
A(t4)
A(t3)
COMMUNI-CATION BLOCKING OBJECT 1
COMMUNI-CATION BLOCKING OBJECT 2
D1(t2)
D1(t1)
D3(t1)
D3(t2)
θ
A(t2)
D2(t2)
D2(t1)
A(t1)
D4(t1)
D4(t2)
COMMUNI-CATION BLOCKING OBJECT 3
COMMUNI-CATION BLOCKING OBJECT 4
A(t0)
B1
X
B2
B3
A: HOST VEHICE

FIG. 5

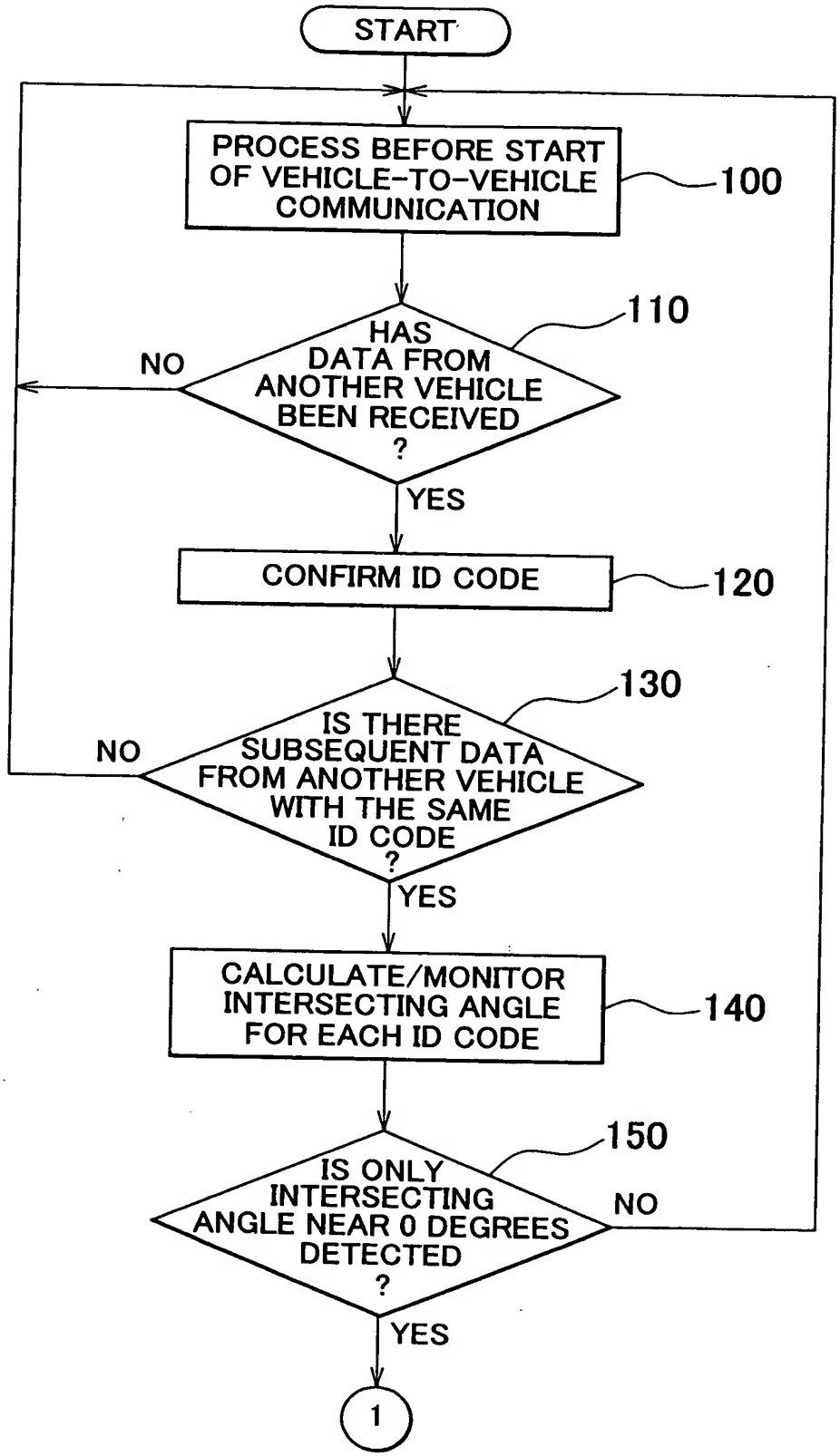

START
PROCESS BEFORE START OF VEHICLE-TO-VEHICLE COMMUNICATION
100
HAS DATA FROM ANOTHER VEHICLE BEEN RECEIVED ?
110
NO
YES
CONFIRM ID CODE
120
IS THERE SUBSEQUENT DATA FROM ANOTHER VEHICLE WITH THE SAME ID CODE ?
130
NO
YES
CALCULATE/MONITOR INTERSECTING ANGLE FOR EACH ID CODE
140
IS ONLY INTERSECTING ANGLE NEAR 0 DEGREES DETECTED ?
150
NO
YES
1

FIG. 6

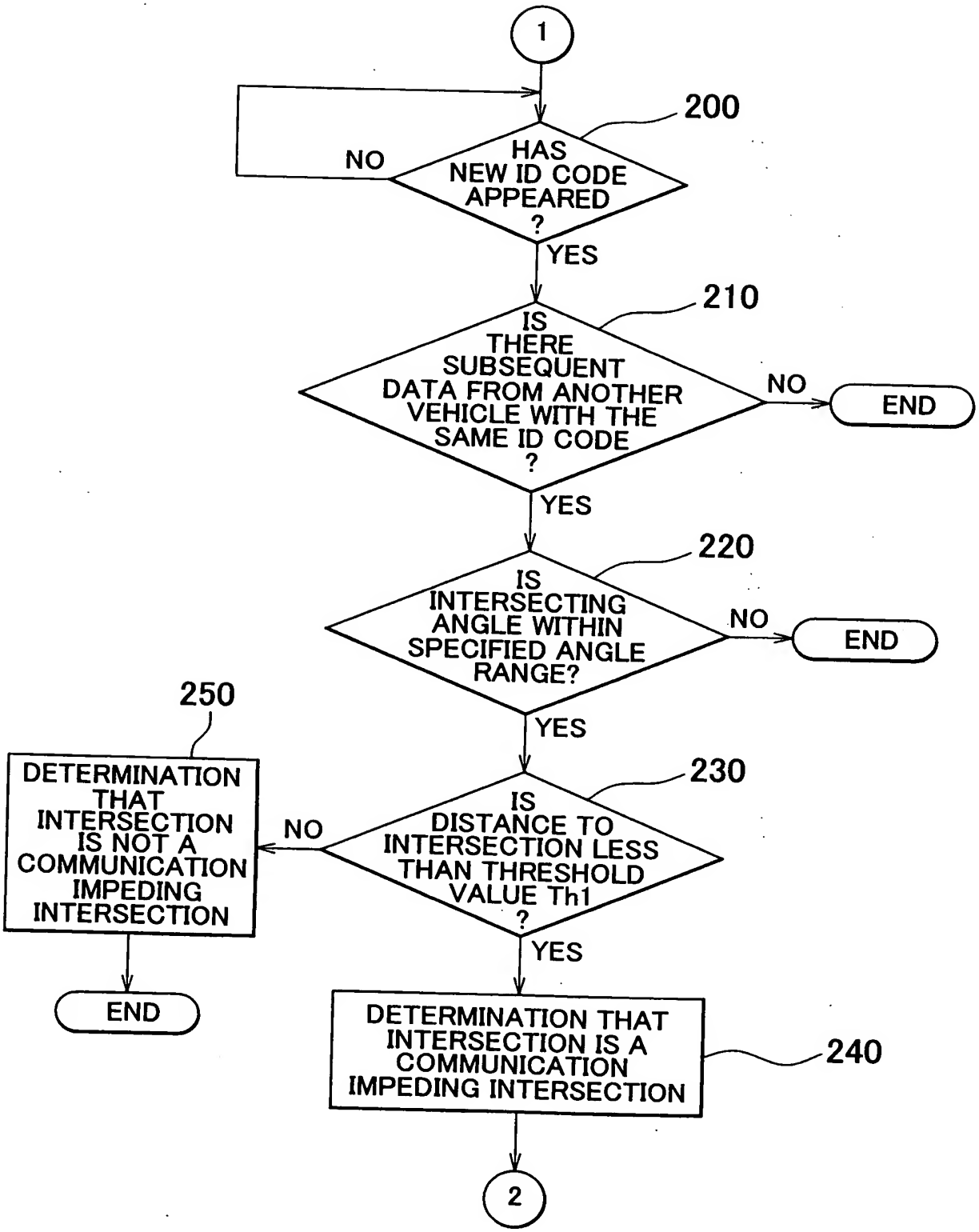

1
200
HAS NEW ID CODE APPEARED ?
NO
YES
210
IS THERE SUBSEQUENT DATA FROM ANOTHER VEHICLE WITH THE SAME ID CODE ?
NO
END
YES
220
IS INTERSECTING ANGLE WITHIN SPECIFIED ANGLE RANGE?
NO
END
YES
230
IS DISTANCE TO INTERSECTION LESS THAN THRESHOLD VALUE Th1 ?
NO
250
DETERMINATION THAT INTERSECTION IS NOT A COMMUNICATION IMPEDING INTERSECTION
END
YES
DETERMINATION THAT INTERSECTION IS A COMMUNICATION IMPEDING INTERSECTION
240
2

FIG. 7

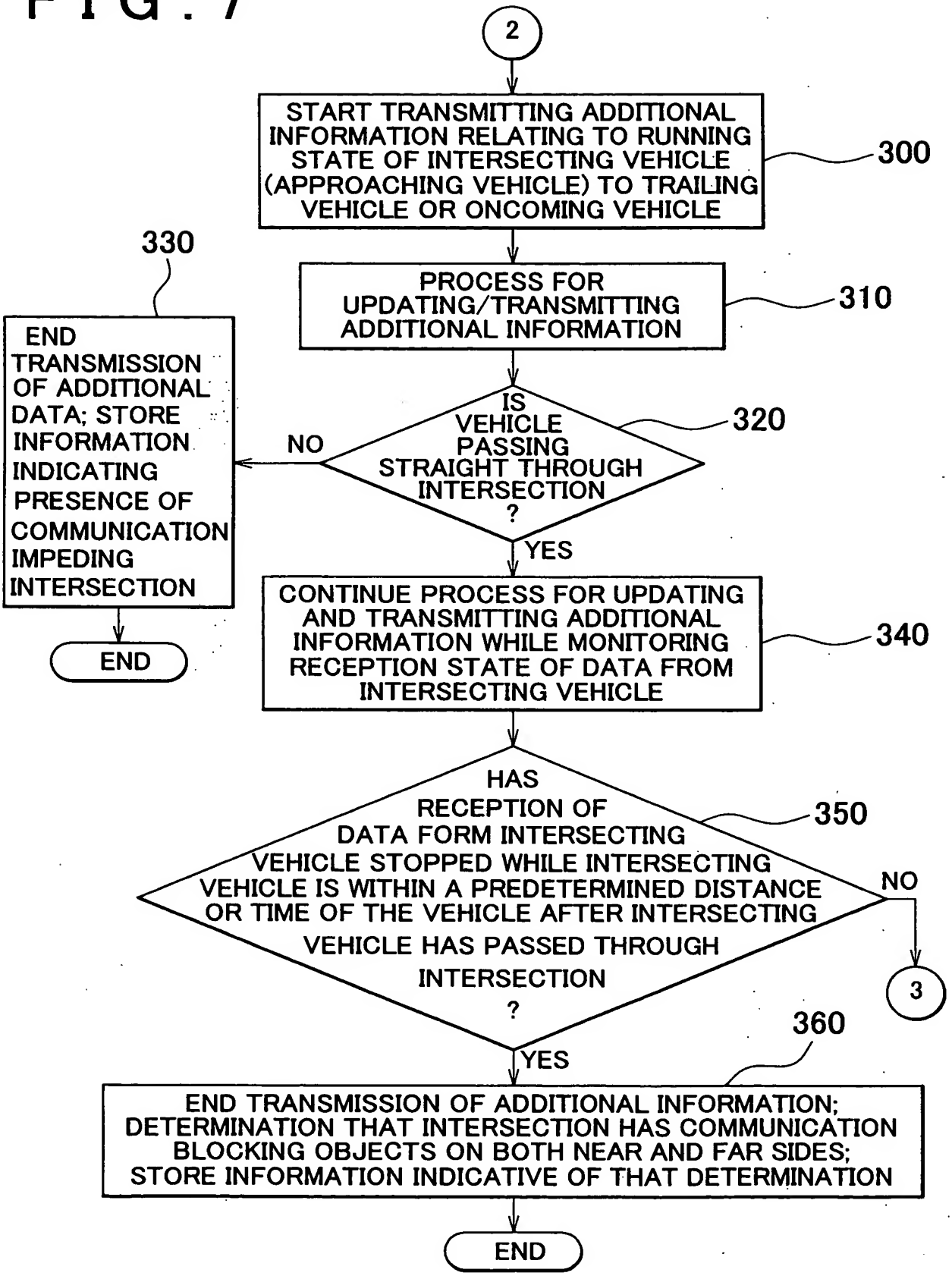
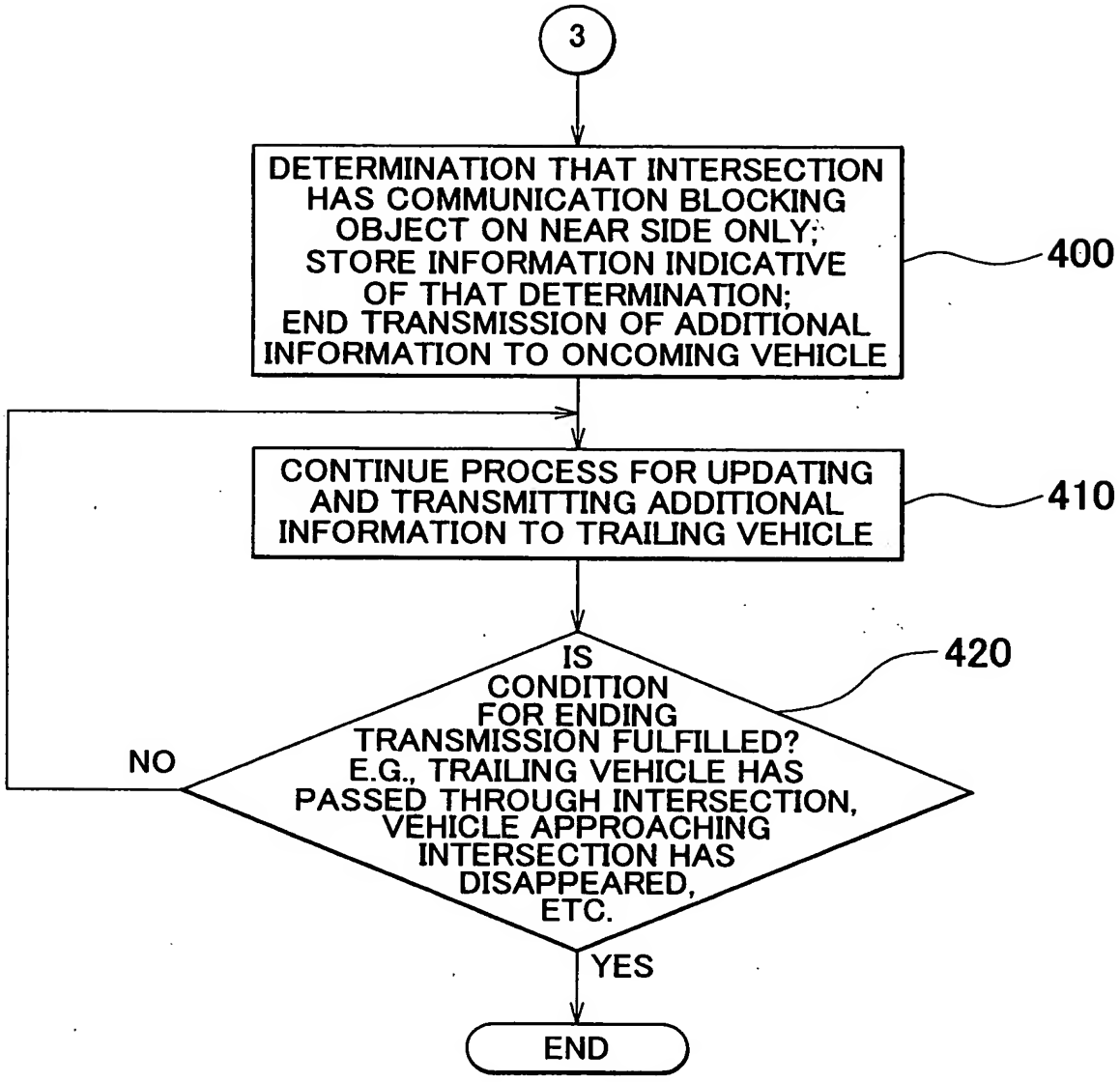

2
START TRANSMITTING ADDITIONAL INFORMATION RELATING TO RUNNING STATE OF INTERSECTING VEHICLE (APPROACHING VEHICLE) TO TRAILING VEHICLE OR ONCOMING VEHICLE
300
PROCESS FOR UPDATING/TRANSMITTING ADDITIONAL INFORMATION
310
IS VEHICLE PASSING STRAIGHT THROUGH INTERSECTION ?
320
NO
YES
330
END TRANSMISSION OF ADDITIONAL DATA; STORE INFORMATION INDICATING PRESENCE OF COMMUNICATION IMPEDING INTERSECTION
END
CONTINUE PROCESS FOR UPDATING AND TRANSMITTING ADDITIONAL INFORMATION WHILE MONITORING RECEPTION STATE OF DATA FROM INTERSECTING VEHICLE
340
HAS RECEPTION OF DATA FORM INTERSECTING VEHICLE STOPPED WHILE INTERSECTING VEHICLE IS WITHIN A PREDETERMINED DISTANCE OR TIME OF THE VEHICLE AFTER INTERSECTING VEHICLE HAS PASSED THROUGH INTERSECTION ?
350
NO
3
YES
360
END TRANSMISSION OF ADDITIONAL INFORMATION; DETERMINATION THAT INTERSECTION HAS COMMUNICATION BLOCKING OBJECTS ON BOTH NEAR AND FAR SIDES; STORE INFORMATION INDICATIVE OF THAT DETERMINATION
END

FIG. 8


3
DETERMINATION THAT INTERSECTION HAS COMMUNICATION BLOCKING OBJECT ON NEAR SIDE ONLY; STORE INFORMATION INDICATIVE OF THAT DETERMINATION; END TRANSMISSION OF ADDITIONAL INFORMATION TO ONCOMING VEHICLE
400
CONTINUE PROCESS FOR UPDATING AND TRANSMITTING ADDITIONAL INFORMATION TO TRAILING VEHICLE
410
IS CONDITION FOR ENDING TRANSMISSION FULFILLED? E.G., TRAILING VEHICLE HAS PASSED THROUGH INTERSECTION, VEHICLE APPROACHING INTERSECTION HAS DISAPPEARED, ETC.
420
NO
YES
END